

17(amended). After amendment, the claims remaining in the application are 1(amended twice), 3, 4(amended), 5, 6(amended), 8(amended twice), 9(amended twice), 10, 11, 12(amended twice), 13, 14, 15(amended), 16(amended twice) and 17(amended twice).

The disclosure for the amendment that the polymeric particles have a mean particle size of between 35 to 60 micrometers is in example 2B on page 18, line 4.

The disclosure for the amendment that the polymeric particles can be present at a loading of 5 to 60% is on page 4, line 9.

The claims stand under rejection and objection for various reasons.

Claims 1, 8 and 9 stand rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

In particular, the Examiner points that in Claim 1 the limitation "wherein the article has a frosted, a surface textured finish or a frosted and surface textured finish" is unclear. In response the Applicant has amended Claim 1 as suggested by the Examiner.

Also, the Examiner points that in Claims 8 and 9 it would not be possible to have 100% acrylate particles and also have 0.1 to 2.5% crosslinking agent. In response the Applicant has amended Claim 8 and 9.

Claims 1, 3-14 and 16-17 stand rejected under 35 U.S.C. 102(b) as being anticipated by USP 4,876,311 ("HENNING")

hereinafter). Claim 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over HENNIG in view of USP 6,077,575 ("MINGHETTI" hereinafter).

The Applicants have reviewed these references. They do not teach, suggest or disclose the Applicants' claimed invention of an extruded polymeric article comprised of a polymeric matrix and polymeric particles which are substantially spherical, highly crosslinked, have a mean particle size of between 35 to 60 micrometers, and have a particle size distribution between 10-110 micrometers and wherein there is a refractive index mismatch between the particles and the matrix resulting in the article having a frosted appearance, a surface textured finish or a frosted appearance and surface textured finish.

In contrast, HENNIG discloses a method of making OPAQUE SYNTHETIC RESIN using cross-linked particles that preferably are between 20-35 microns (column 3, lines 5-7).

HENNIG's opaque plastic is used for a projection screen application. HENNIG does not consider textured surface and translucency, which is the key point of the present invention. The particle size range preferred by HENNIG would give a glossy surface, which is undesirable for the frosted/textured application of the present invention.

Additionally, the smaller particles disclosed in HENNIG would be deficient to achieve a product having the mar resistance or scratch resistance of the present invention.

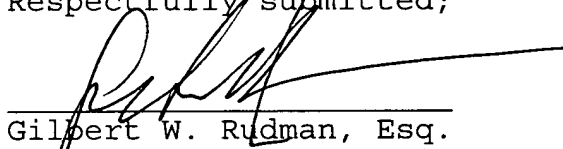
MINGHETTI discloses a method of making a granite appearance using colored particles which have irregular shapes and are far beyond the average particle size range required to have a light diffusion effect. The particles disclosed in MINGHETTI are 60-5000 microns in size, and most preferred at 60-3000 microns (column 5, lines 59-64). Although adding

colorant to any material could improve its aesthetic appeal, there is no example in MINGHETTI of adding colorants to suspension particles to achieve the textured surface and frosted appearance of the present invention.

Hence, MINHETTI does not teach, suggest or disclose the present invention, which is a textured surface and light diffusion product made by using spherical particles which have to meet specification of cross-linking and particle size distribution.

Since the Applicant believes that the reasons for rejection have been overcome, the claims herein should be allowable to the Applicant. Accordingly, reconsideration and allowance are requested.

Respectfully submitted;



Gilbert W. Rudman, Esq.
Attorney for the Applicants
Reg. No. 27,589

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ATOFINA Chemicals, Inc.
Patent Department - 26th Floor
2000 Market Street
Philadelphia, PA 19103-3222
Tel (215) 419-7636
Fax (215) 419-7075

Attachment: Marked Version of Proposed Amended Claims

1. (amended twice) An extruded polymeric article comprised of a polymeric matrix and polymeric particles which are substantially spherical, highly crosslinked, have a mean particle size of between [25 to 55] 35 to 60 micrometers and have a particle size distribution between 10-110 micrometers wherein the article has a frosted appearance or[,] a surface textured finish or a frosted appearance and surface textured finish.

~~[2. (deleted) The article of Claim 1, wherein the beads have a mean particle size of 25-55 micrometers.]~~

3. The article of Claim 1 wherein the polymeric matrix is an ABS terpolymer, ASA copolymer, polycarbonate, polyester, PETG, MBS copolymer, HIPS, acrylonitrile/acrylate copolymer, polystyrene, SAN, MMA/S, an acrylonitrile/methyl methacrylate copolymer, impact modified polyolefins, PVC, impact modified PVC, imidized acrylic polymer, acrylic polymer or impact modified acrylic polymer.

4. (amended) The article of Claim 3 wherein the polymeric matrix is comprised of polymethyl methacrylate.

5. The article of Claim 1 wherein a frosted appearance is achieved through the mismatch of the refractive indices of the polymeric particles and polymeric matrix by greater than 0.02.

6. (amended) The article of Claim 1 comprised of:

- a) 20 - 90% by weight, polymethyl methacrylate or alkyl methacrylate/alkyl acrylate copolymer matrix;
- b) 0 - 50% by weight, modifiers; and
- c) 5 - 60% by weight, highly crosslinked spherical polymeric particles comprised of about 0-100% by weight,

styrene; 0-100% by weight, alkyl methacrylate, 0-100% by weight, alkyl acrylate and crosslinking agent.

~~Delete 7. (amended) The article of Claim 1 comprised of~~
~~a) 20 - 90% by weight, polymethyl methacrylate or alkyl methacrylate/alkyl acrylate copolymer matrix;~~
~~b) 0 - 50% by weight, modifiers; and~~
~~c) 5 - 30% by weight, highly crosslinked spherical polymeric particles comprised of about~~
~~0-100% by weight, styrene,~~
~~0-100% by weight, alkyl methacrylate,~~
~~0-100% by weight, alkyl acrylate and crosslinking agent.~~

8. (amended twice) The article of Claim 1 comprised of:
a) 20 - 90% by weight, polymethyl methacrylate matrix;
b) 0 - 50% by weight, modifiers; and
c) 5 - [30] 60% by weight, highly crosslinked spherical polymeric particles comprised of 0 - 50% by weight, styrene [100]99.9 - 50% by weight, alkyl alkylacrylate, alkyl acrylate or a combination thereof; and 0.1- 2.5% by weight, crosslinking agent.

9. (amended twice) The article of Claim 1, wherein the particles are comprised of:
a) 0 - 50% by weight, styrene;
b) 45-[100]99.01% by weight, alkyl methylacrylate or alkyl acrylate;
c) 0.01-5% by weight, crosslinking agent.

10. The article of Claim 9 wherein the crosslinking agent is ethylene glycol dimethacrylate, divinylbenzene or allyl methacrylate.

11. The article of Claim 10 wherein the crosslinking agent is divinylbenzene.

12. (amended twice) A resin comprised of:

a) 20 - 90% by weight, matrix comprised of polymethyl methacrylate;

b) 5 - 50% by weight, modifiers; and

c) 5 - [30] 60% by weight, highly crosslinked spherical polymeric particles comprised of 10 - 50% by weight, styrene 90- 50% by weight, methyl 0.1 - 2.5% by weight, crosslinking agent, wherein the polymeric particles have a mean particle size of [25-55] 35-60 micrometers, and a particle size distribution of between 15-110 micrometers.

13. The resin of Claim 12 wherein the crosslinking agent is ethylene glycol dimethacrylate, divinylbenzene or allyl methacrylate.

14. The resin of Claim 12 wherein the crosslinking agent is allyl methacrylate.

15. (amended) The resin of Claim 12 wherein the polymeric particles contain a colorant.

16. (amended twice) A resin comprised of:

a) [70]60 - 85% by weight, matrix comprised of polymethyl methacrylate; and

b) 15 - [30] 40% by weight, highly crosslinked spherical polymeric particles comprised of:

15 - 35% by weight, styrene

65 - 85% by weight, methyl methacrylate 0.5-1.5% by weight, allyl methacrylate; wherein the polymeric particles have a mean particle size of 25-55 micrometers, and a particle size distribution of between 15-110 micrometers.

17. (amended twice) A resin comprised of:

a) 20 - 90% by weight, matrix comprised of polymethyl methacrylate or alkyl methacrylate/alkyl acrylate copolymer;

b) 0 - 50% by weight, modifiers; and

c) 5 - [30] 40% by weight, highly crosslinked spherical polymeric particles comprised of about 0-100% by weight, styrene, 0-100% by weight, alkyl methacrylate, 0-100% by weight, alkyl acrylate and crosslinking agent wherein the polymeric particles have a mean particle size of 25-55 micrometers, and a particle size distribution of between 15-110 micrometers.